



UNITED STATES PATENT AND TRADEMARK OFFICE

A
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|------------------------|---------------------|------------------|
| 09/927,043 | 08/09/2001 | John Franklin Ebersole | 16805-00035 | 4734 |
| 7590 | 04/09/2004 | | EXAMINER | |
| Mirick O'Connell DeMallie & Lougee, LLP Suite 1700 100 Front Street Worcester, MA 01608-1477 | | | MENGISTU, AMARE | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2673 | 10 |
| DATE MAILED: 04/09/2004 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|-----------------|-----------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/927,043 | EBERSOLE ET AL. |
| | Examiner | Art Unit |
| | Amare Mengistu | 2673 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 24 February 2004.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 5-29 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 5-10,13,14,17 and 19-25 is/are rejected.

7) Claim(s) 11,12,15,16,18 and 26-29 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. _____.
- Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 5,6,9-16,18, 20-29 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

3. The specification as originally filed did not disclose the recitation of claim 20, lines 3-5, 7-8 “at least one video camera . . . , **places proximate the user's eyes to minimize the distance between the camera and the user's eyes, with each camera pointed away from the user and placed on the optical axis of the user's eyes**” and “**the computer graphics corresponding to each camera's position and field of view**”.

4. At the time of the application was filed, the specification has also failed to disclose the recitation of claim 21, lines 4-10, “**at least one mirror...to alter the incoming viewing angle of each camera such that the effective viewpoint of the camera is placed on the optical axis of the user's eye**” and “**wherein each camera/mirror... so as to minimize the distance between the camera's effective**

viewpoint and the user's eyes while placing the camera viewpoint directly in front of the user's eyes, with each camera pointed away from the user".

5. Claims 5,6,9-16,18, 22-29 are also rejected since they depend on rejected base claim 20 and 21.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

6. Claims 5,6,911,13,15,23-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. In claim 20, lines 3-4, the phrase "at least one video camera coupled to the SCBA...with each camera pointed away from the user" is not clear.

8. In claim 21, lines 3-7, the recitation of the claim "**at least one video camera. at least one mirrored surface...wherein each camera/mirror**" is also not clear. It is not clear as to how one can say each camera/mirror since the claim states as **at least one camera/mirror**. It is not clear how one can referees to one camera/mirror as each camera/mirror? Correction is required.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 5,7,8,17,19-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Zhang (6,476,391)** in view of **Webster (5,274,405)** and **Sauer et al (2002/0075201)**.

As to claims 5,7,8,17,19-25 **Zhang** teaches an augmented reality display device comprising: a self contained breathing mask (fig.2); a head mounted display (fig.1) and a head mounted camera (fig.1 (20), fig.2 (2a)) placed proximate the user's eye to minimized the distance between the user's eye, and placed on the optical axis of the user's eyes; the a see though head mounted display (col.2, lines 12-13,); a mirror to see the camera view point (fig.1 (32)) which is mounted on a mounting plate (fig.2 (32a)); a headphone (fig.1 (46)). **Zhang** did not explicitly disclose that the head motion tracker coupled to the mask.

However, the patent of **Webster** is cited to teach that is well known for head motion tracker to be coupled to a mask (see, fig.4 (30); col.7, lines 1-6; col.13, lines 47-62).

Therefore, it would have been obvious to one skill in the art at the time of the invention was made to have been motivated to use the motion tracker system of **Webster** into the device of **Zhang**, because this is will provide a one to one correspondence between the head movement and the field of view perceived by the eye.

Zhang has also failed to teach a computer graphics rendered by a computer to be shown to the user, the computer graphics corresponding to the user's field of view; and the computer graphics are displayed, to combine the computer graphics with the user's view of the real world.

Sauer et al. teaches a head up display (fig.2a (201)) with a stereoscopic system having two cameras (figs. 2a, 2B (202,203)) which is a see through or a non-see through display system (real and virtual image) having a computer graphics rendered by computer to be shown to the user, the computer graphics corresponding to the user's field of view (page 2, col.1, [0020]; col.2 [0030]) and a see through head mounted display mounted in front of the user's eye on which the computer graphics are displayed, to combine the computer graphics with the user's view of the real world (page 2, col.2 [0030]; page 4, col.2 [0051]).

Therefore, it would have been obvious to one skill in the art at the time of the invention was made to have been motivated to incorporate the method of combining the computer graphics the user's field of view as taught by **Sauer et al** into the device of **Zhang** (as modified by **Webster**), because this will allow the user to see a real environment through a semi transparent display that shows additional computer graphics. The system can be used to provide guidance to a user, for example, providing information during a surgical procedure.

As to shaft to connect to the head phone to the SCBA; It would have been obvious to one skill in the art to recognize that head phone of **Zhang** must be connect to SCBA in order to be stable to the ear.

It would have been also obvious to one skill in the art to make the shafts of the headphones stronger in order to protect from braking.

11. Claims 6, 9,10, 13, 14 and 17 rejected under 35 U.S.C. 103(a) as being unpatentable over **Zhang** in view of **Webster (5,274,405)** and **Sauer et al** further in view of **Arai et al (6,018,630)**.

12. As to claims 6,10, 13,14 and 17 **Zhang** as modified by **Webster** and **Sauer et al** teaches a head mounted display having a second camera to generate a stereoscopic view (col.3, lines 45-51, col.8, lines 55- col.9, lines 16). **Zhang** has failed to teach a mirror to set the camera viewpoint to more closely coincide with the wearer's eye position. **Arai et al** is cited to teach that it is conventional for a camera to have a mirror to set the viewpoint closely to the user's eye (see, Abstract; col.2, lines 26-34,49-63).

Therefore, it would have been obvious to one skill in the art at the time of the invention was made to have incorporated the use of mirror in camera as taught by **Arai et al** into the system of **Zhang**, since this will provide to position an image to near the observer's eye for a closely look of the image.

It is also well known to use some kind of protection around the mirror to prevent from damage.

Allowable Subject Matter

13. Claims 11,12,15,16,18,26-29 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

14. The following is a statement of reasons for the indication of allowable subject matter: the cited prior arts has failed to teach applicant's claimed invention "*a mirror is placed in a mechanical clamp mount*"; "*a mirror is mounted on a mounting plate*"; "*said opaque materials are selected from the group of materials consisting of tape, foam, plastic, rubber, silicone, paint, and combination these materials*"; "*wherein the non-augmented reality portion of the user's field of view is blocked from view by the user with opaque material such that only augmented reality imagery is visible to the user*".

Response to Arguments

15. Applicant's arguments with respect to claims 5-29 have been considered but are moot in view of the new ground(s) of rejection.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amare Mengistu whose telephone number is (703) 305-4880. The examiner can normally be reached on M-F, T-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (703) 305-4938. The fax phone numbers

for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-9600.


Amare Mengistu
Primary Examiner
Art Unit 2673

A.M
April 7, 2004